

SPSS AND DATA ANALYSIS

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ABUJA

❖ INTRODUCTION

- ❖ Problems are real
- ❖ Solutions are possible to every problem

❖ **APPROACHES**

❖ Analytical Techniques

❖ Computational Techniques

$$\underline{r_{pb} = \frac{\bar{X}_1 - \bar{X}_0 \sqrt{p(1-p)}}{S_x}} \quad (1)$$

$$r = \frac{n(\sum xy) - (\sum x)(\sum y)}{\sqrt{[n\sum x^2 - (\sum x)^2][n\sum y^2 - (\sum y)^2]}} \quad (2)$$

FRUSTRATION



Statistical Analysis Software

- ❖ Statistical software are specialized computer programs for analysis in statistics.
- ❖ software designed to aid in statistical analysis and data exploration.

Examples include

- **IBM SPSS**
- Stata
- XL Stat
- AcaStat
- WizardMac
- MaxStat
- MINITAB

Statistical Tools

- ❖ Frequency counts and percentages
- ❖ Mean and Standard deviations
- ❖ Spearman's Rank-Order Correlation
- ❖ Pearson's Product-Moment
- ❖ Point-biserial correlation
- ❖ Partial correlation
- ❖ Chi-square test for independence
- ❖ Chi-Square goodness of fit test
- ❖ T-test
- ❖ ANOVA
- ❖ MANOVA
- ❖ Kruskal

What is SPSS ?

This software is one of the most popular statistical packages which can perform highly complex data manipulation and analysis with simple instructions.

- ✓ The package was first launched in 1968.
- ✓ IBM acquired the package in 2009.
- ✓ It is officially known as IBM SPSS Statistics
- ✓ Popularly refer to it as “SPSS”.

SPSS : Applications

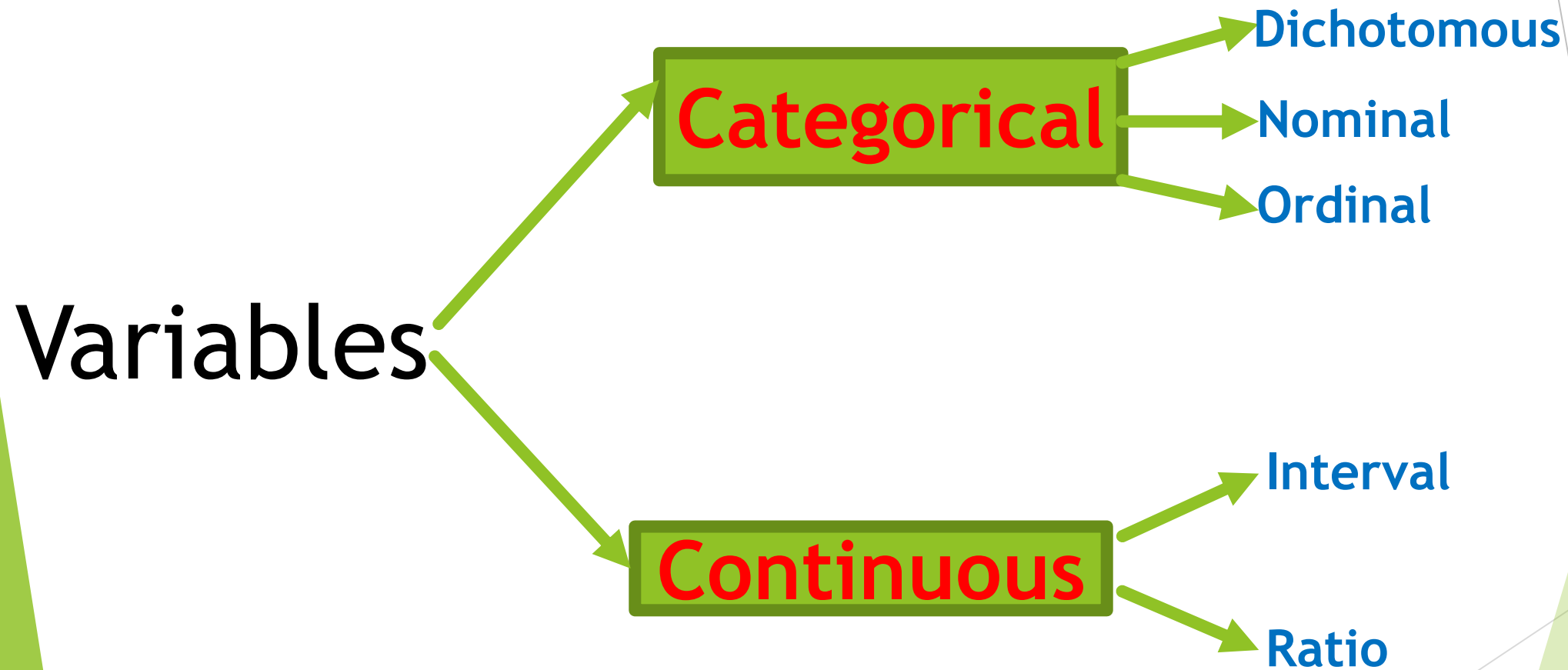
It is used in many fields including business, education, medicine, engineering and others.

- ❖ Data management and analysis
- ❖ Generation of reports for decision making

Formats:

- Graphical
- Texts
- Tables

KNOW YOUR VARIABLES



SPSS VIEWS ?

SPSS

```
graph LR; SPSS --> DV[Data View]; SPSS --> VV[Variable View];
```

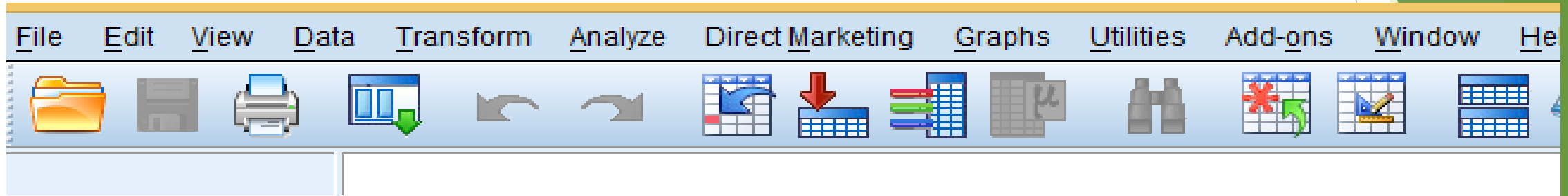
Data View

Data view displays **data values**

Variable View

It shows details of the **variables** and data values.

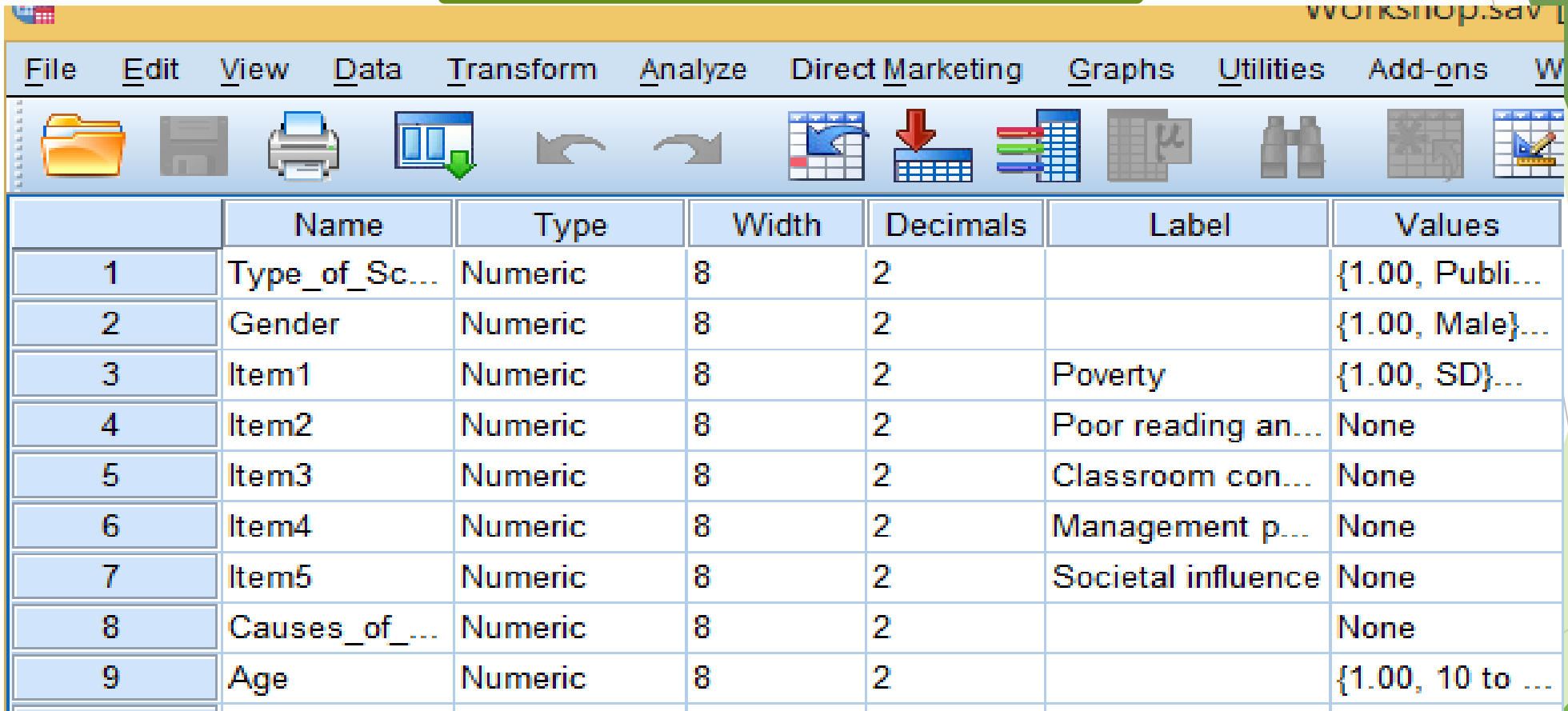
Data View



The screenshot shows a software interface with a menu bar and a toolbar. The menu bar includes: File, Edit, View, Data, Transform, Analyze, Direct Marketing, Graphs, Utilities, Add-ons, Window, and Help. The toolbar contains various icons for file operations (folder, save, print, window), navigation (back, forward), data manipulation (download, copy, paste), and analysis (binoculars, scatter plot, bar chart, line chart).

	Type_of_School	Gender	Item1	Item2	Item3	Item4	Item5
1	2.00	1.00	4.00	3.00	3.00	4.00	4.00
2	2.00	2.00	2.00	2.00	4.00	3.00	3.00
3	1.00	1.00	3.00	3.00	2.00	4.00	4.00
4	2.00	2.00	4.00	2.00	4.00	3.00	3.00
5	2.00	2.00	1.00	3.00	2.00	4.00	2.00
6	2.00	1.00	3.00	4.00	4.00	3.00	1.00
7	2.00	1.00	2.00	2.00	4.00	4.00	4.00
8	1.00	1.00	4.00	3.00	4.00	3.00	2.00

Variable View

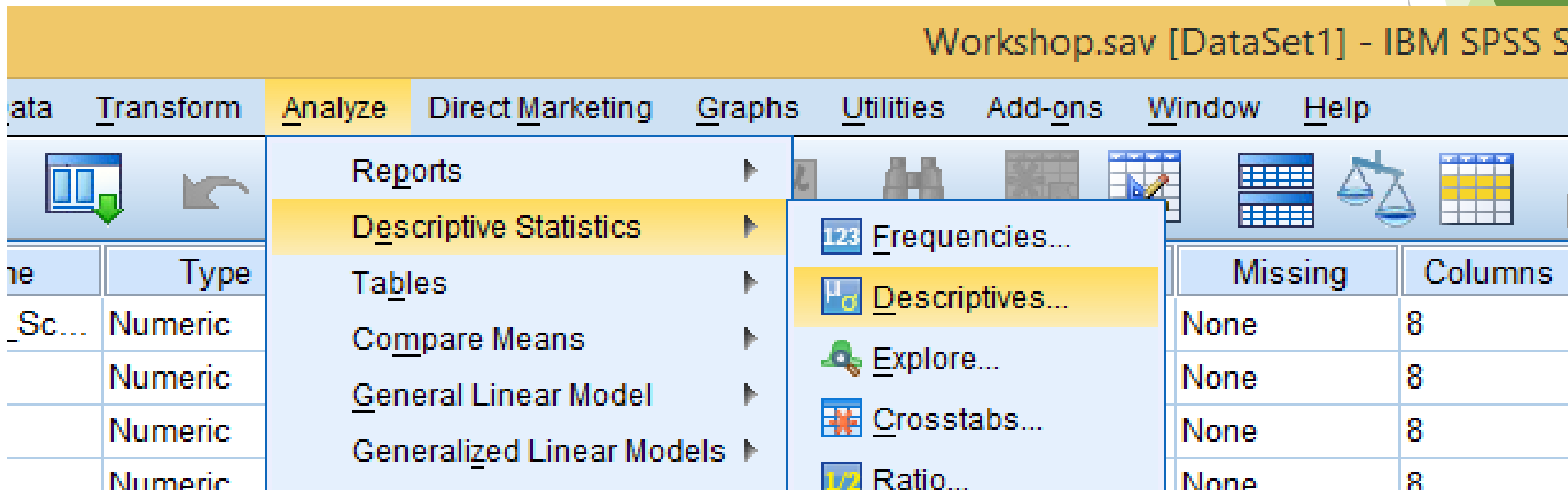


The screenshot shows the SPSS Variable View window for a file named 'workshop.sav'. The menu bar includes File, Edit, View, Data, Transform, Analyze, Direct Marketing, Graphs, Utilities, Add-ons, and Windows. The toolbar contains icons for file operations, printing, and data management. The main area displays a table with the following columns: Name, Type, Width, Decimals, Label, and Values.

	Name	Type	Width	Decimals	Label	Values
1	Type_of_Sc...	Numeric	8	2		{1.00, Publi...
2	Gender	Numeric	8	2		{1.00, Male}...
3	Item1	Numeric	8	2	Poverty	{1.00, SD}...
4	Item2	Numeric	8	2	Poor reading an...	None
5	Item3	Numeric	8	2	Classroom con...	None
6	Item4	Numeric	8	2	Management p...	None
7	Item5	Numeric	8	2	Societal influence	None
8	Causes_of_...	Numeric	8	2		None
9	Age	Numeric	8	2		{1.00, 10 to ...

Analyze your Data

One option is using SPSS' elaborate menu options.



SPSS Output Window

The results of the analysis are displayed for further action

s/n	Name of College	State
1.	FCT College of Education, Abuja	FCT-Abuja
2.	Federal College of Education, Okene	Kogi
4.	Kwara State College of Education, Oro	Kwara

Saving Data and Output

- Copy-paste into other programs
- SPSS data can be saved into different file formats:
 - ❖ MS Excel;
 - ❖ Plain text (.txt or .csv);
 - ❖ Pdf;
 - ❖ Stata;

Research Questions and Statistical Tools

- **Descriptive Question:** What is the major cause of students' poor academic performance in FCT COE, Zuba?

Tools: Frequency, Percentage, Mean and Standard deviation

➤ **Relational Question:** Is there a relationship between male and female performance in GSE 837?

Tools: Correlation e.g Spearman, Pearson

➤ **Group Differences Questions/Hypotheses:**

✓ **Group Difference Question**

What is the difference in the academic performance of Male and Female students in GSE 213.

Tools: Frequency, Percentage, Mean and Standard deviation

✓ **Group Difference Hypothesis**

There is no significant difference in the academic performance of Male and Female students in GSE 213 => **Null Hypothesis**

Tools: Independent t-test, One-Way ANOVA

*I AM READY FOR
ACTION!*



THANK YOU

